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## Five New Species of the Genus *Psila* MEIGEN (Diptera, Psilidae) from Nepal<sup>1),2)</sup>

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**Abstract** Five new species of the genus *Psila* MEIGEN: *P. (Psila) himalayensis*, *P. (P.) notata*, *P. (Freyopsila) asiatica*, *P. (F.) subtilis* and *P. (F.) luteifrons* are described from Nepal.

**Key words:** Diptera; Psilidae; *Psila*; new species; Nepal.

### Introduction

Flies of the genus *Psila* of the Psilidae are distributed in the Holarctic, Oriental and Afrotropical Regions (SHEWELL, 1965; COGAN, 1977, 1980; Soós, 1984). The larvae are known to be phytophagous, burrowing in roots and stems of herbaceous plants. The Palaearctic species have been studied by HENNIG (1941), COLLIN (1944, 1959), WAKERLEY (1959), LYNEBORG (1964), Soós (1974, 1984 and 1985), SHATALKIN (1983, 1986, 1989 and 1992), WANG (1988), WANG and YANG (1989) and IWASA (1991). The Oriental species have been reported by WIEDEMANN (1830), FREY (1955) and were cataloged by COGAN (1977); now 5 species are known to occur in Burma and China in the Region. However, there has been no record of the genus *Psila* in Nepal.

Recently, I had a chance to examine the specimens of the Psilidae collected by Kyushu University Scientific Expedition in 1971 and 1972 in Nepal. As a result of the examination, five species of the *Psila* were recognized as new to science. The purpose of this paper is to describe and illustrate these new species. The type-specimens will be deposited in Biological Laboratory, College of General Education, Kyushu University, Fukuoka.

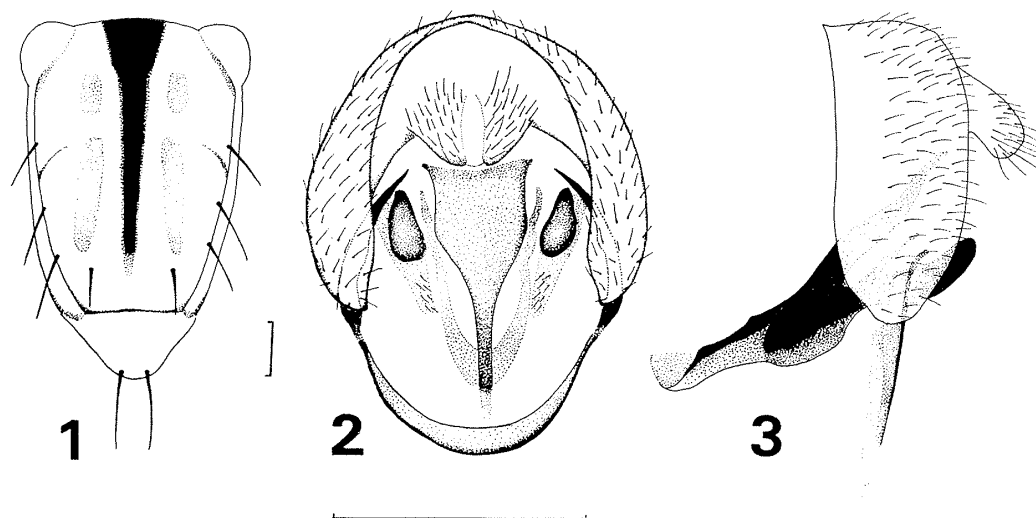
### *Psila (Psila) himalayensis* n. sp.

(Figs. 1–3)

♂♀. Head: eyes brown; frons yellow except black ocellar triangle; face, facial orbit and gena yellow; occiput light brown; 1st to 3rd antennal segments

1) Contribution No. 158 from Laboratory of Entomology, Obihiro University of Agriculture and Veterinary Medicine.

2) Result of Kyushu University Scientific Expedition to the Nepal Himalaya, Diptera 16.



Figs. 1–3. *Psila (Psila) himalayensis* n. sp. — 1, Thorax, dorsal view; 2, male genitalia, posterior view; 3, ditto, lateral view (left). Scales: 0.25 mm.

brown to dark brown; arista short-haired; palpus yellow; 1 *oc*, 1 *or* (weak), 2 *vt*; *pvt* absent.

Thorax: mesonotum yellow and centrally with a black longitudinal stripe and with or without a pair of obscure dark lateral stripes (Fig. 1); pleura yellow, only mesopleuron with dark dorsal margin; scutellum yellow; metanotum brown; 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc*. Wing: hyaline, slightly tinged with light brown; veins brown; halter whitish yellow, darkened basally. Legs: all coxae, femora and tibiae yellow and without any black setae; tarsi brown, darkened apically.

Abdomen: tergites wholly black and shiny, and clothed with short hairs; sternites brown and horizontally broad; basal part of male aedeagus broad but distal portion gradually narrowed (Fig. 2); parameres distinct and not angular (Fig. 3); ovipositor short and soft, and cercus not strongly sclerotized.

Body length (Holotype), 4.1 mm; wing length, 5.1 mm.

Holotype: ♂, Topke Gola (3,700 m)-Thurukpa (2,600 m), East Nepal, 12 June 1972, J. EMOTO. Paratypes: 1 ♂, same data as holotype; 15 ♂, 6 ♀, NE of Thudam (4,000 m), E. Nepal, 25–30 June 1972, H. SHIMA; 8 ♂, 2 ♀, same data, J. EMOTO; 11 ♀, Thudam (3,500 m), 21–30 June 1972, Malaise trap.

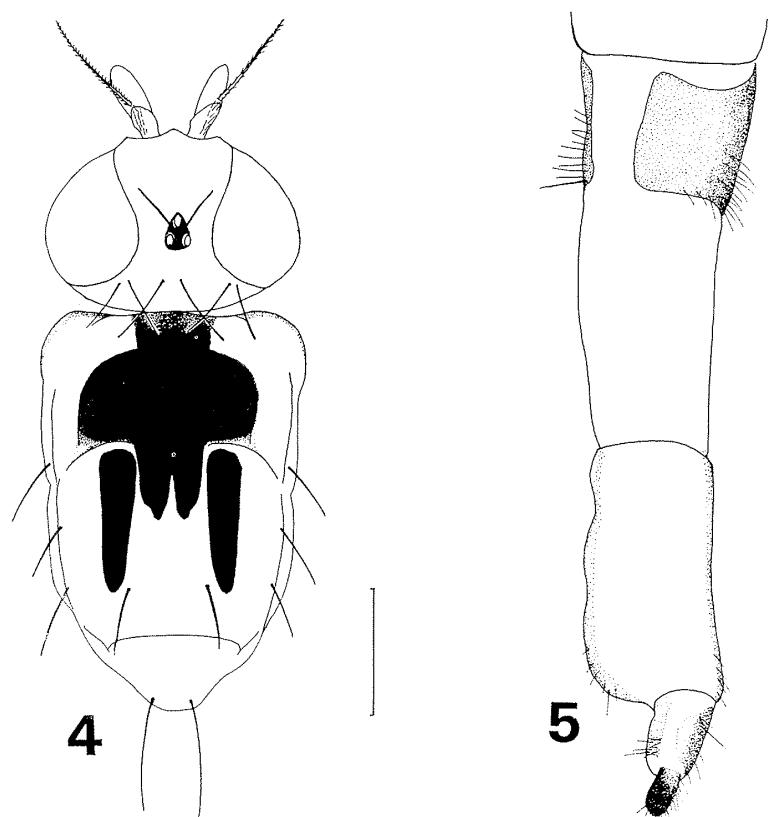
*Distribution.* Nepal.

*Remarks.* This species is related to *Psila (Psila) lineata* HENDEL described from China, but distinct in having a longitudinal black stripe on mesonotum and 2 *vt*.

***Psila (Psila) notata* n. sp.**

(Figs. 4–5)

♀. Head: eyes brown; frons light brown; ocellar triangle small and black



Figs. 4–5. *Psila (Psila) notata* n. sp. — 4, head and thorax, dorsal view; 5, female terminalia, lateral view (left). Scales: 0.5 mm.

(Fig. 4); face, facial orbit and gena light brown; 1st to 2nd antennal segment light brown, 3rd segment yellow; arista short-haired; palpi light brown; 1 *oc*, 2 *vt*, 1 *pvt*; or absent.

Thorax: mesonotum yellow with black patterns (Fig. 4); pleura and scutellum yellow; metanotum dark brown; 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc*. Wing: hyaline, slightly tinged with light brown; veins light brown; halteres whitish yellow. Legs: entirely yellow, without any black setae.

Abdomen: tergites wholly black, shiny and sparsely with downy hairs; sternites brown and longitudinally slender; ovipositor short and soft, and cercus strongly pigmented (Fig. 5).

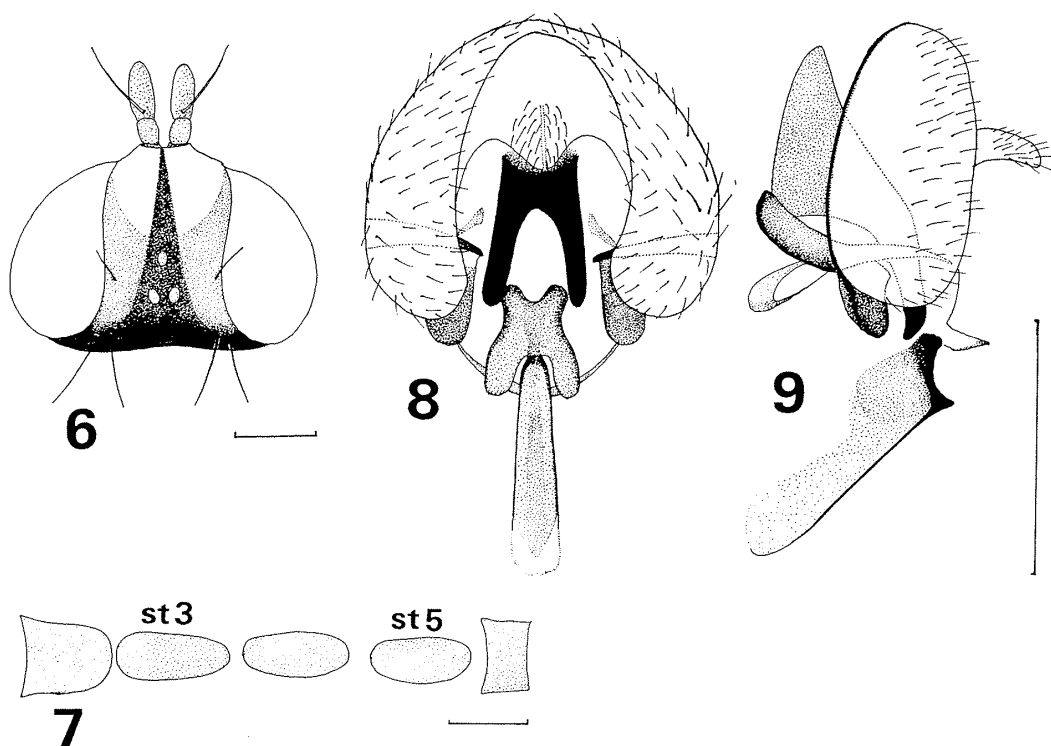
Body length (Holotype), 4.0 mm; wing length, 4.0 mm.

*Male.* Unknown.

Holotype: ♀, Dobang Kharka (2,400 m), Central Nepal, 10–14 Oct. 1971, Malaise trap, A. NAKANISHI. Paratype: 1 ♀, same locality as holotype, 25 Sep. 1971, A. NAKANISHI.

*Distribution.* Nepal.

*Remarks.* This species is related to European *Psila (Psila) quadrilineata* STROBL



Figs. 6–9. *Psila (Freyopsila) asiatica* n. sp. — 6, head, dorsal view; 7, 2nd to 6th sternites; of male; 8, male genitalia, posterior view; 9, ditto, lateral view (left). Scales: 0.25 mm.

and Russian *P. (P.) potanini* SHATALKIN, but differentiated from them in having characteristic patterns on mesonotum and yellowish pleura.

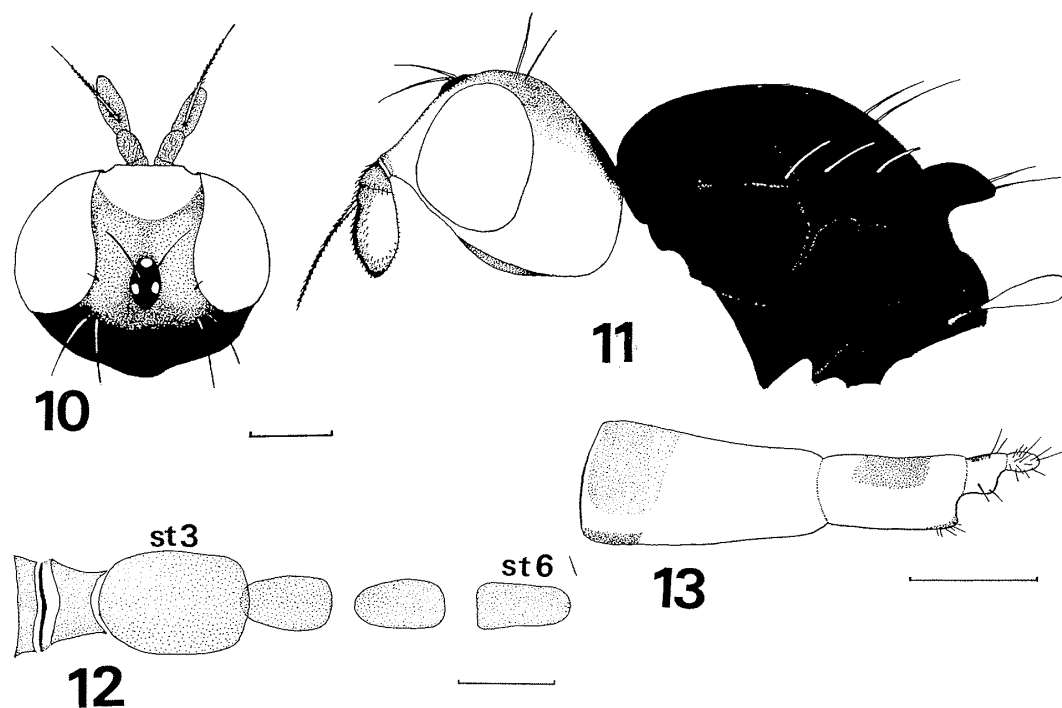
*Psila (Freyopsila) asiatica* n. sp.

(Figs. 6–9)

♂♀. Head: eyes dark brown; frons anteriorly yellow in semicircular shape and brown in posterior part (Fig. 6); ocellar triangle large and black (Fig. 6); face brown with a dark vertical stripe; facial orbit and gena brown to dark brown; occiput dark brown; 1st to 3rd antennal segment brown, anterodorsal margin of 3d segment dark brown; arista whitish yellow and short-haired; palpus dark brown to black; 1 *oc*, 1 *or*, 2 *vt* (these setae black); *pvt* absent.

Thorax: mesonotum dark brown and shiny, and clothed with hairs; pleura and metanotum brown and shiny; 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc* (these setae black). Wing: hyaline, tinged with light brown; veins light brown; halter whitish, basally yellow. Legs: entirely yellow, without any black setae.

Abdomen: tergites wholly black, shiny, and clothed with comparatively long hairs; 3rd to 5th sternites longitudinally elongate oval (Fig. 7); aedeagus comparatively short, filmy and apically curved (Fig. 9); parameres distinct and not angular (Fig. 8–9); ovipositor short and soft, and cercus not strongly sclerotized.



Figs. 10–13. *Psila* (*Freyopsila*) *subtilis* n. sp. — 10, head, dorsal view; 11, head and thorax, lateral view (left); 12, 1st to 6th sternites of female; 13, female terminalia, lateral view (left). Scales: 0.25 mm.

Body length (Holotype), 3.9 mm; wing length, 4.2 mm.

Holotype: ♂, Thudam (3,500 m), E. Nepal, 21–30 June 1972, Malaise trap, Kyushu University. Paratypes: 22 ♂, 20 ♀, same data as holotype; 3 ♂, 2 ♀, Thudam (3,500 m), 1–4 July 1972, Malaise trap; 14 ♂, 15 ♀, Thudam (3,500 m), 26–30 June 1972, J. EMOTO; 2 ♂, 5 ♀, Dobang Kharka (2,400 m), 14–20 Oct. 1971, A. NAKANISHI; 1 ♀, Basantapur (2,300 m), 5 May 1972, J. EMOTO.

*Distribution.* Nepal.

*Remarks.* This species is closely related to *Psila* (*Freyopsila*) *nigriseta* IWASA, but differs from it in having dark face and gena. This species is also related to *P. (F.) sibirica sibirica* FREY, but differs from it in the presence of black setae on head and thorax.

*Psila* (*Freyopsila*) *subtilis* n. sp.

(Figs. 10–13)

♀. Head: eyes brown; frons dark brown except anterior yellow part (Fig. 10); ocellar triangle small and black; face yellow to light brown; facial orbit and gena light brown; occiput dark brown; 1st to 2nd antennal segments brown to dark brown, 3rd segment light brown with anterodorsally dark area (Fig. 11); arista yel-

low and short-haired; palpus dark brown; 1 *oc*, 2 *vt* (these setae yellow); *or* vestigial; *pvt* absent.

Thorax: mesonotum dark brown to black and covered with minute hairs; pleura, metanotum and scutellum glossy dark brown (Fig. 11); 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc* (these setae yellow). Wing: hyaline, slightly tinged with light brown; veins light brown; halter white, basally yellow. Legs: entirely yellow, without any black setae.

Abdomen: tergites wholly black, shiny, and sparsely with downy hairs; 3rd to 6th sternites longitudinally elongate oval (Fig. 12), 7th sternite not widely pigmented; ovipositor short and soft, cercus not pigmented (Fig. 13).

Body length (Holotype), 3.0 mm; wing length, 3.2 mm.

*Male*: Unknown.

Holotype: ♀, Dobang Kharka (2,400 m), Central Nepal, 24–25 Sep. 1971, A. NAKANISHI. Paratypes: 12 ♀, same data as holotype.

*Distribution*. Nepal.

*Remarks*. This species is closely related to *Psila* (*Freyopsila*) *sibirica flavigena* SHATALKIN. As a result of comparison between the specimens of these two species, this new species differs from *sibirica flavigena* in having yellowish setae on head and thorax.

***Psila* (*Freyopsila*) *luteifrons* n. sp.**

(Figs. 14–17)

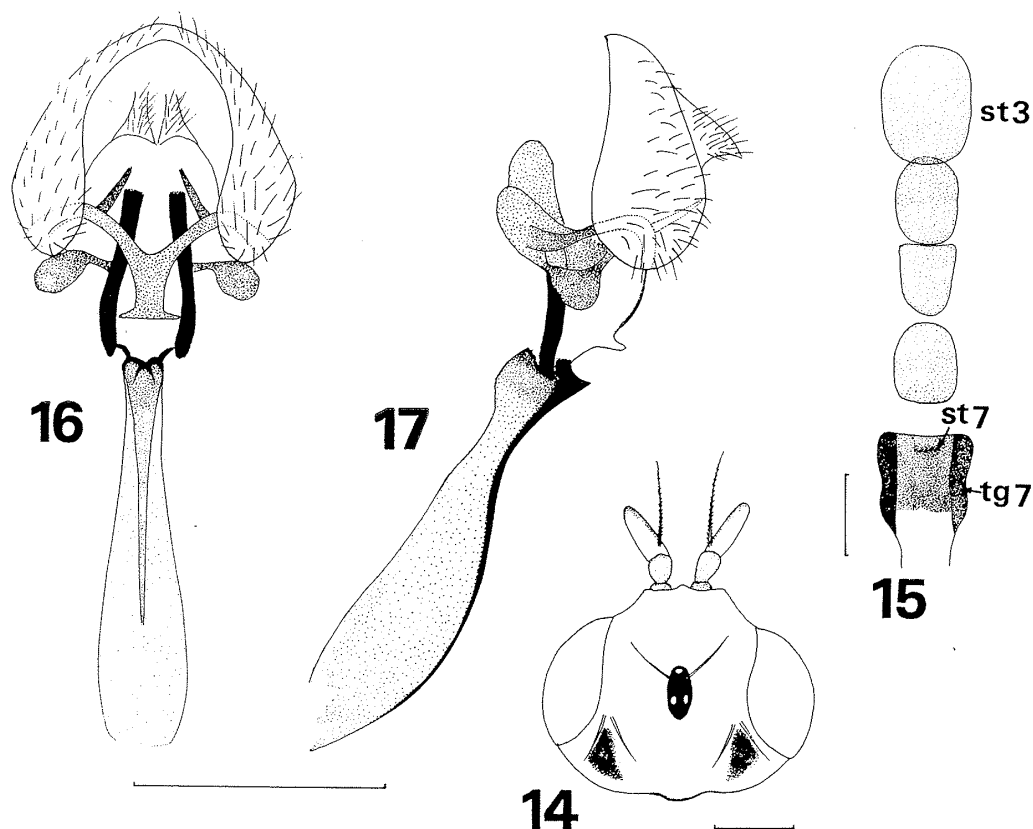
♂♀. Head: eyes brown; frons yellow except small ocellar triangle (Fig. 14); face yellow; facial orbit and gena yellow; occiput yellow with a pair of dark spots (Fig. 14); 1st to 2nd antennal segments brown, 3rd segment yellow with anterodorsally dark area; arista yellow and short-haired; palpus dark brown; 1 *oc*, 2 *vt* (these setae yellow); *or* and *pvt* absent.

Thorax: mesonotum dark brown to black, shiny, and covered with minute hairs; pleura, metanotum and scutellum glossy dark brown to black; 1 *n*, 1 *sa*, 1 *pa*, 1 *dc*, 1 *sc* (these setae yellow). Wing: hyaline, slightly tinged with light brown; veins light brown; halter whitish yellow. Legs: entirely yellow, without any black setae.

Abdomen: tergites wholly black, shiny, and sparsely with downy hairs; sternites longitudinally oval-shaped; female 7th sternite widely pigmented and fused to 7th tergite (Fig. 15); epandrium dorsally narrow in lateral view (Fig. 17); paramere round, and aedeagus comparatively long, filmy and dorsally curved (Fig. 16–17); ovipositor short and soft, and cercus not pigmented.

Body length (Holotype), 3.0 mm; wing length, 3.0 mm.

Holotype: ♂, Basantapur (2,300 m), E. Nepal, 26 Apr. 1972, J. EMOTO. Paratypes: 3 ♀, same locality, 27 Apr. 1972, H. SHIMA; 1 ♀, same locality, 30 Apr. 1972, Y. NISHIDA; 1 ♀, same locality, 5 May 1972, Malaise trap, Kyushu University.



Figs. 14–17. *Psila* (*Freyopsila*) *luteifrons* n. sp. — 14, head, dorsal view; 15, 3rd to 7th sternites of female; 16, male genitalia, posterior view; 17, ditto, lateral view (left). Scales: 0.25 mm.

*Distribution.* Nepal.

*Remarks.* This species is closely related to *P. (F.) subtilis* n. sp., but is differentiated from it by colorations of frons and occiput in both sexes, and by pigmented 7th sternite of female.

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## References

- COGAN, B. H., 1977. Family Psilidae. In DELFINADO, M. D. & D. E. HARDY (eds.), *Cat. Dipt. Orient. Reg.*, 3: 24–27. Univ. Hawaii Press, Honolulu.
- 1980. Family Psilidae. In CROSSKEY, R. W. (ed.), *Cat. Dipt. Afrotrop. Reg.*, 589–590. British Museum (Nat. Hist.), London.
- COLLIN, J. E., 1944. The British species of Psilidae (Diptera). *Ent. mon. Mag.*, 80: 214–224.
- 1959. A new species of *Psila* (Diptera, Psilidae) from Yugoslavia. *Entomologist*, 92: 241.
- HENNIG, W., 1941. Family Psilidae. In LINDNER, E. (ed.), *Flieg. palaearkt. Reg.*, 5 (1): 1–38. Schweizerbart, Stuttgart.
- IWASA, M., 1991. Taxonomic study of the genus *Psila* MEIGEN (Diptera, Psilidae) from Japan, Sakhalin and the Kuril Islands. *Jpn. J. Ent.*, 59: 389–408.
- LYNEBORG, L., 1964. Danske acalypterate fluer. 2. Psilidae, Platystomidae og Otitidae (Diptera). *Ent. Medd.*, 32: 367–388.
- SHATALKIN, A. I., 1983. New species of flies of the family Psilidae (Diptera) from the Far East. *Ent. Obozr.*, 62: 360–366.
- 1986. Review of the eastpalaearctic flies of *Psila* MG. (Diptera, Psilidae), with the key of the palaearctic species. *Proc. zool. Inst. Leningrad*, 146: 23–43.
- 1989. Notes on the Palaearctic Psilidae (Diptera). *Arc. zool. Mus. Moscow State Univ.*, 27: 88–113.
- 1992. New and little-known palaearctic Diptera of the families Platypezidae, Psilidae and Lauxanidae. *Russian Ent. J.*, 1: 59–74.
- SHEWELL, G. E., 1965. Family Psilidae. In STONE, A. et al. (eds.), *Cat. Dipt. Am. nor. Mex.*, U. S. Dept. Agric. Handbk 276, Washington D. C., pp. 638–641.
- Soós, A., 1974. Taxonomische und Faunistische Untersuchungen über die Psiliden (Diptera) aus der Mongolei. *Annl. hist.-nat. Mus. natn. hung.*, 66: 241–250.
- 1984. Family Psilidae. In Soós, A. & L. PAPP (eds.), *Cat. Palaearc. Dipt.*, 9: 28–35. Elsevier Sci. Pub., Budapest.
- 1985. Untersuchungen einiger Psilide-Typen aus der Zetterstedt'schen Sammlung nebst Beschreibung einer neuen Art (Diptera: Psilidae). *Acta zool. hung.*, 31: 235–244.
- WAKERLEY, S. B., 1959. A new species of *Psila* MEIGEN (Diptera: Psilidae) from Northern England. *Proc. R. ent. Soc. Lond. (B)*, 28: 107–108.
- WANG, X., 1988. Bestimmungstabelle der westpalaearktischen *Chamaepsila*-Arten (Diptera: Psilidae). *Stuttgarter Beitr. Naturk. Ser. A (Biologie)*, No. 417, pp. 1–13.
- WANG, X. and C. YANG., 1989. Two new species of Psilidae from Shaanxi (Diptera: Acalypteratae). *Entomotaxonomia*, 11: 175–176.

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